

What is claimed is:

Sub A1

1. An aqueous glittering ink comprising scaly glittering particles, a water-soluble resin, a water-soluble organic solvent, a colorant and water, wherein the said scaly glittering particles have a median diameter of at least 10 μ m, a ratio of smoothness on the particle surface to a median diameter of not greater than 0.011, and a surface coating ratio of the said colorant covering the surface of the said particle's surface in a written mark of not greater than 80% in a state of a dried written mark .
2. An aqueous glittering ink as set forth in claim 1, wherein the ink has the pseudo-plasticity fluidity (thixotropic property).
3. An aqueous glittering ink as set forth in claim 2, wherein the ink has the T.I. value, the thixotropy index, of not less than 1.3 represented by the ratio of V0.5 to V1.0 ($V_{0.5} / V_{1.0}$), wherein V0.5 is the viscosity with the rotation speed of 0.5rpm and V1.0 is the viscosity with the rotation speed of 1.0 rpm when the ink is measured by an ELD-typed viscometer (3° R14 cone, at the temperature of 20°C).
4. An aqueous glittering ink as set forth in claim 2, wherein the ink has the viscosity of 1000 ~ 15000 mPa · s when measured by an ELD-typed viscometer (3° R14 cone, rotation speed: 0.5rpm at the temperature of 20°C)
5. An aqueous glittering ink as set forth in claim 1, wherein the said scaly glass particles comprise glass flake particles.
6. An aqueous glittering ink as set forth in claim 1, wherein the said scaly glass particles comprise metal coated inorganic particles.
7. An aqueous glittering ink as set forth in claim 1, wherein the

content of the said scaly glittering particles is 0.01 - 40% by weight relative to the total amount of the ink.

8. An aqueous glittering ink as set forth in claim 1, wherein the said scaly glittering particles have a median diameter of at least 25 μm .

Sub A2 9. An aqueous glittering ink as set forth in claim 1, wherein a water-soluble resin is contained in 0.01 - 40% by weight relative to the total amount of the ink.

10. An aqueous glittering ink as set forth in claim 1, wherein a colorant is contained in 0.01 - 30% by weight relative to the total amount of the ink.

11. An aqueous glittering ink as set forth in claim 1, further containing an opacifying pigment.

12. An aqueous glittering ink as set forth in claim 1, comprising a binder component for fixing the said scaly glittering particles to a written mark or a coated film.

13. An aqueous glittering ink as set forth in claim 12, containing a synthetic resin emulsion as the said binder component.

14. An aqueous glittering ink as set forth in claim 13, wherein the said synthetic resin emulsion is contained in 0.01 - 40% by weight in solids relative to the total amount of the ink.

Sub A3 15. An aqueous glittering ink as set forth in claim 14, wherein the content of the said scaly glittering particles is 0.01 - 40% by weight, the water-soluble thickening resin is 0.01 - 40% by weight and the water-soluble organic solvent is 1 - 40% by weight, relative to the total amount of the ink.

16. An aqueous glittering ink composition as set forth in claim 13,

wherein the said synthetic resin emulsion has an anionic property or a nonionic property and its minimum film forming temperature is not higher than 20°C.

Sub A4 17. An aqueous glittering ink as set forth in claim 15, further
5 containing a colorant in 0.01 - 30% by weight relative to the total amount of the ink.

18. An aqueous glittering ink as set forth in claim 12, further containing an opacifying pigment.

Sub A5 10 19. A method for forming the written mark comprising glittering particles, wherein glittering particles have a median diameter of at least 10 μm , the ratio of smoothness on the particle surface to the said median diameter is not greater than 0.011, and the coating ratio of a colorant to scaly glittering particles to the said median diameter is not greater than 80%, interspersing the scaly glittering particles within the range of not greater
15 than 80% to the total written surface, and interspersing the said colorant's particles among the said glittering particles.

20 20. A method for forming the written mark comprising glittering particles, wherein glittering particles have a median diameter of at least 25 μm , the ratio of smoothness on the particle surface to the said median diameter is not greater than 0.011, and the coating ratio of a colorant to scaly glittering particles to the said median diameter is not greater than 40%, interspersing the scaly glittering particles within the range of 20~45% to the total written surface, and interspersing the said colorant's particles among the said glittering particles.

25 21. A method for forming a written mark as set forth in claim 19,

Sub A5
cont.

wherein the rate of concavo-convex of resin coated film covering the surface of the scaly glittering particles is not greater than $0.15 \mu\text{m}$.

22. A method for forming a written mark as set forth in claim 19, wherein a smoothness of the coated film (the written mark) is not less than 9 μm .

Sub B3
B

23. A written mark having the characteristics of the aqueous glittering ink, wherein glittering particles have a median diameter of at least $10 \mu\text{m}$, the ratio of smoothness on the particle surface to the said median diameter is not greater than 0.011, and the coating ratio of a colorant to scaly glittering particles is not greater than 80%, interspersing the scaly glittering particles within the range of not greater than 80% to the total written surface, and interspersing the said colorant's particles among the said glittering particles.

Sub B4
B

24. A written mark having the characteristics of the aqueous glittering ink, wherein glittering particles have a median diameter of at least $25 \mu\text{m}$, the ratio of smoothness on the particle surface to the said median diameter is not greater than 0.011, and the coating ratio of a colorant to scaly glittering particles is not greater than 40%, interspersing the scaly glittering particles within the range of 20~45% to the total written surface, and interspersing the said colorant's particles among the said glittering particles.

Sub A6
A

25. A written mark as set forth in claim 23, wherein the rate of concavo-convex of resin coated film covering the surface of the scaly glittering particles is not greater than $0.15 \mu\text{m}$.

26. A written mark as set forth in claim 23, wherein the smoothness of a coated film (written mark) is not less than $9 \mu\text{m}$.

Sub AG
cont.

27. A ball-point pen with an aqueous glittering ink filled in the ink tank comprising scaly glittering particles, a water-soluble resin, a water-soluble organic solvent, a colorant and water, wherein the said scaly glittering particles have a median diameter of at least $25\mu\text{m}$, thixotropy index (T.I. value) of not less than 1.3, represented by the ratio of V0.5 to V1.0 (V0.5 / V1.0), wherein V0.5 is the viscosity with the rotation speed of 0.5rpm and V1.0 is the viscosity with the rotation speed of 1.0 rpm when the ink is measured by an ELD-typed viscometer (3° R14 cone, at the temperature of 20°C) and the V0.5, the viscosity with the rotation speed of 0.5rpm, of 1000 ~ 15000 mPa.

28. A ball-point pen as set forth in claim 27, wherein the a ratio of smoothness on the particle surface to a median diameter is not greater than 0.011, and a surface coating ratio of the said colorant covering the said particle's surface in a written mark is not greater than 80% in a state of a dried written mark.

Add A7